PARCC

Partnership for Assessment of
Readiness for College and Careers

TECHNOLOGY GUIDELINES FOR PARCC ASSESSMENTS
VERSION 2.0 – DECEMBER 2012

Current updates and additional information are available at:
http://www.parcconline.org/technology

The Partnership for the Assessment of Readiness for College and Careers (PARCC) is pleased to provide these technology guidelines to inform schools and districts as they make technology decisions to best meet the instructional needs of their students. The information in this document is intended to answer questions about whether existing computer inventories and new instructional hardware that schools may purchase as they implement the Common Core States Standards, will also meet PARCC's 2014-15 requirements for the online test.

Technology Guidelines for PARCC Assessments Version 2.0 refines, and therefore supersedes, the Version 1.0 document previously released in April 2012.

This document provides two sets of guidance regarding technical specifications:

Minimum Specifications
Minimum Specifications address the oldest operating systems and lowest levels of hardware capacity that can reasonably be compatible with PARCC computer-based assessments in 2014-2015.
- Minimum Specifications apply to existing school technology inventories.
- Computers meeting the Minimum Specifications can be considered as satisfying PARCC guidelines for **2014-2015**.

Considerations regarding computers meeting, but not exceeding, minimum specifications:
- Computers with these minimum specifications may not be adequate beyond the second year of PARCC assessments in **2015-2016**. PARCC recommends that schools upgrade or replace computers with older operating systems and lower memory capacities to Recommended Specifications levels as soon as possible.
- Computers that meet only the Minimum Specifications will be compatible with the PARCC assessment delivery platform, but are more likely to experience slower performance than higher capacity computers.

Recommended Specifications
Recommended Specifications outline the levels of computer and network capacity that are more likely to meet growing demands for school technology that supports learning, assessment, and administrative uses simultaneously across classrooms.
- Recommended Specifications apply to both existing inventory and new hardware purchases.
- Computers meeting the Recommended Specifications can be expected to satisfy PARCC guidelines through the **2018-2019** school year.

TECHNOLOGY GUIDANCE FOR DECISION MAKING

While the ongoing processes for assessment and technical platform design continues, *Technology Guidelines for PARCC Assessments Version 2.0* **is intended to help states and districts inform their own readiness preparations and decision-making.** As test components are piloted through Item Tryouts in 2013 and Field Testing in Spring 2014, PARCC will supplement the guidance in this document to reflect current knowledge about what states will need to administer PARCC's computer based assessment components. The most current version of this document and most up-to-date information is maintained at http://www.parcconline.org/technology.

BANDWIDTH RECOMMENDATIONS

Minimum bandwidth requirements will be determined based on the final selection of the PARCC assessment delivery platform and the level of multimedia and technology enhanced items in the final assessment design. PARCC will provide minimum specifications by October 2013.

As schools plan for PARCC assessments concurrent with enhancing bandwidth to support instructional needs, PARCC is modeling recommended specifications on those advanced by the State Educational Technology Directors Association in its May 2012 publication *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs* (http://www.setda.org).

	Minimum Specifications	Recommended Specifications
External Connection to the Internet	To be determined by October 2013	100 Kbps per student or faster
Internal School Network	To be determined by October 2013	1000 Kbps per student or faster

SECURITY REQUIREMENTS

Eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating system (Windows, Mac, Linux, iOS, Android, Chrome) must have the administrative tools and capabilities to "lock down" the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration, and should not prevent a PARCC secure browser or other test software to be determined from entering the computer into lock down mode. Features that will need to be controlled during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, Bluetooth connections, application switching, and printing.

The operating systems listed here as approved for PARCC assessments meet this security requirement, but provide different mechanisms for managing user security settings at the individual device and/or enterprise levels. School technology administrators should be familiar with the particular requirements of the systems they will be using for PARCC assessments to ensure test security is maintained.

TESTING PLATFORM SOFTWARE / WEB BROWSWER REQUIREMENTS

Software and/or browser requirements will be defined by October 2013, driven by the design choices for test items and the assessment delivery platform.

DEVICE SPECIFICATIONS

Desktops, laptops, netbooks (Windows, Mac, Chrome, Linux), thin client, and tablets (iPad, Windows, and Android) will be compatible devices provided they meet the established hardware, operating system, and networking specifications—and are able to address the security requirements described in the Security Considerations section of the Guidelines.

Desktop, Laptop, Netbook, and Thin Client[1]/VDI Computers

Operating System	Minimum Specifications[2]	Recommended Specifications
Windows	[3]Windows XP – Service Pack 3	Windows 7 or newer
Mac OS	Mac OS 10.5	Mac OS 10.7 or newer
Linux	Ubuntu 9-10, Fedora 6	Linux: Ubuntu 11.10, Fedora 16 or newer
Chrome OS	Chrome OS 19	Chrome OS 19 or newer
Memory	512 MB of RAM	1 GB RAM or greater
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.5 inch screen size or larger	9.5 inch screen size or larger
Screen Resolution	1024 x 768 resolution[4] or better	1024 x 768 resolution[4] or better
Input Device Requirements	Keyboard Mouse/Touchpad	Keyboard Mouse/Touchpad
	The input device must allow students to control an onscreen cursor to point, click, drag, and select an area. The input device must allow students to enter letters, numbers, and symbols and shift, tab, return, and backspace. Other assistive technologies may be needed for students requiring accommodations. PARCC will release Accessibility Guidelines and Accommodations Guidelines in June 2013.	
Headphone/Earphone and Microphone Requirements	Headphones/Earphones Microphone	Headphones/Earphones Microphone
	Headphones/earphones and microphones are required for all students taking the English Language Arts/Literacy Speaking and Listening Assessment. Headphones/earphones are required for students using text to speech or other auditory accommodations. Microphones are required for students using speech to text accommodations.	
Additional Guidance	[1]Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [2]Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. PARCC recommends that schools upgrade from the oldest operating systems and lowest memory levels as soon as possible. [3]Windows XP will no longer be supported by Microsoft after April 8, 2014, presenting both security and support risks for schools. (http://windows.microsoft.com/en-US/windows/end-support-help) [4]Computers running Windows XP-Service Pack 3 may require a web browser other than Internet Explorer due to HTML5 compatibility limitations. PARCC will issue specific web browser guidance by October 2013. [5]Computers must accommodate the 1024 x 768 screen resolution minimum specification without panning.	

Tablets		
Operating System	Minimum Specifications	Recommended Specifications
Android	Android 4.0	Android 4.0 or newer
Apple iOS	iPad 2 running iOS 6	iPad 2 or newer running iOS6 or newer
Windows	[6]Windows 8	[6]Windows 8 or newer
Memory	1 GB RAM	1 GB RAM or greater
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.5 inch screen size or larger	9.5 inch screen size or larger
Screen Resolution	1024 x 768 resolution[4] or better	1024 x 768 resolution[4] or better
Input Device Requirements	Keyboard Mouse/Touchpad	Keyboard Mouse/Touchpad
	Due to the onscreen space occupied by a tablet's virtual keyboard, PARCC is strongly recommending that schools be prepared to provide external keyboards for test takers using tablets so as not to limit or obscure the view of test item content and related functionalities when text input is required. Research studies to be conducted by PARCC in Spring 2013 are intended to yield data on student's use of virtual versus external keyboards. PARCC will refine this guidance as needed based on these results. External keyboards must allow students to enter letters, numbers, and symbols and shift, tab, return, and backspace. Tablet touch screen interfaces can be used for student interactions with the assessments other than text input, including to control an onscreen cursor to point, click, drag, and select an area. Other assistive technologies may be needed for students requiring accommodations. PARCC will release Accessibility Guidelines and Accommodations Guidelines in June 2013.	
Headphone/Earphone and Microphone Requirements	Headphones/Earphones Microphone	Headphones/Earphones Microphone
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Additional Guidance	[6]PARCC has not yet evaluated the compatibility of Windows RT for 2014-2015. Further information will be issued on Windows RT in Version 3.0 of the PARCC Guidelines. [7]Smaller tablets (screen size less than 9.5"), e-readers, and smart phones will not be supported and will not be compatible with PARCC assessments for 2014-2015.	